PATENT ABSTRACTS OF JAPAN

(54) THIN-FILM TRANSISTOR

(57)Abstract:

PURPOSE: To be hardly influenced by dust particles, contamination or the like in a substratum, to be excellent in a dielectric breakdown strength and to be pinholeless by a method wherein an insulating film formed by an atomic-layer epitaxial method is used as a gate insulating film.

CONSTITUTION: A gate electrode G composed of a metal film such as a Ti film is formed on a glass substrate 1; after that, a film in which a first insulating film 11 and a second insulating film 12 have been laminated is formed as a gate insulating film 2 with which the gate electrode is covered. Alumina films of a monoatomic layer and titanium oxide films of a monoatomic layer are laminated alternately by using an atomic-layer epitaxial method; a laminated film with a thickness of about 4500Å as the first insulating film 11 is formed on the glass substrate 1. Accordingly, since the first insulating film formed by the ALE method, a pinhole and a crack are not produced; in addition, the second insulating film 12 at its upper layer can be formed continuously inside an identical vacuum tank without breaking a vacuum after the first insulating film 11 at its lower layer has been completed, accordingly, an interface between an SiN film and an a-Si:H layer can be kept clean.
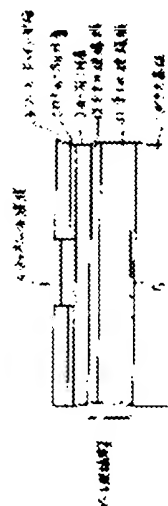
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